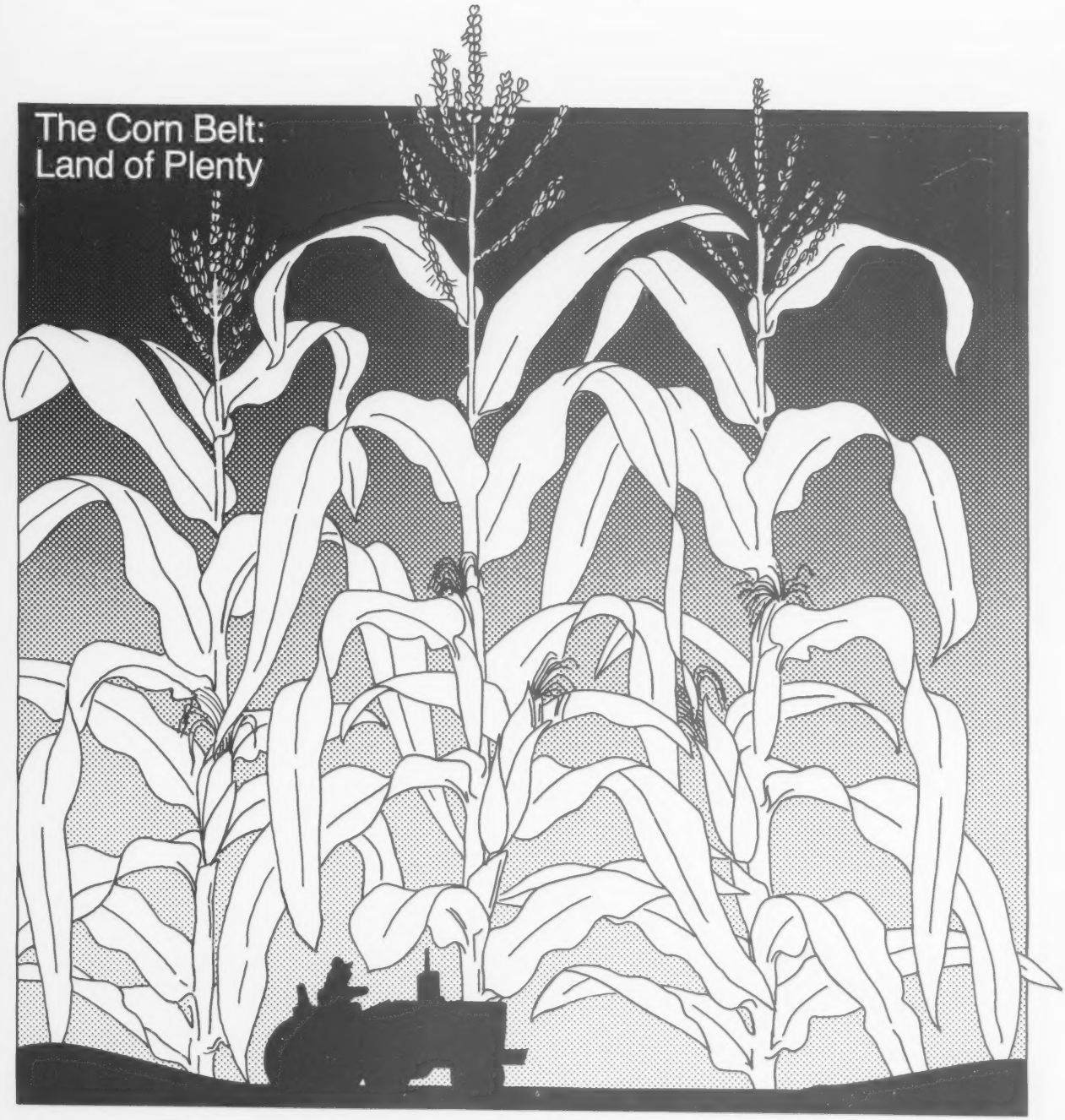
FARM INDEX

U. S. Department of Agriculture
April 1978



Outlook

Near-term outlook. Compared with a year ago, the livestock sector will likely turn in a better report card for cash receipts than the crops side. The gain for livestock—some $5 million over first half 1977—will stem from higher prices and larger output.

Though crop receipts will trail year-earlier levels, chances are they'll top last fall's tally. Loan activity so far has been brisk, and grain prices have strengthened, thanks to brightening prospects for exports. Government payments should continue large in the coming months.

Input prices snap back. After slowing in second-half 1977, input tags could advance 4 to 5 percent in the first 6 months of 1978 versus the 1977 period.

Little change is in the offing for fertilizers and pesticides, but farmers should be prepared to shell out more for gas and diesel fuels. The story's the same for natural gas (minimum price hike of 10 to 20 percent) and LP gas (10 to 15 percent).

Farm machinery sales faltered last year, and the trend hasn't wavered much. But the built-up inventories probably won't result in softer prices for farmers the rest of the year.

Mixed news for exports. Revised forecasts for both volume and value of farm shipments this fiscal year show an upward tilt. Volume is slated to score an alltime high of over 110 million metric tons, up 8 percent from last year.

Value probably won't match the 1977 record of $25 billion. It's now estimated at around $22½ billion. Bigger export volume will be more than offset by lower prices, in particular for wheat, corn, soybeans, and cotton. Export prices for all U.S. farm products could fall a tenth or more from the 1977 average.

Food prices keep rising. The grocery bill in retail stores this year will probably run about 6–8 percent over 1977—roughly the same increase as in 1976-77. Unlike last year when imported foods (mostly coffee) stoked the price rise, most of the pressure in 1978 will come from higher prices for foods produced on U.S. farms.

Bad weather could throw that forecast out of kilter. We're assuming conditions for crops will be relatively favorable in the growing season, and that grain feeding for livestock will be heavy. That adds up to ample food supplies, hence seasonally lower prices at the farm gate this summer and fall. But higher food marketing costs will likely be more than offsetting.

Second quarter food prices will average 1 or 2 percent above the winter quarter. That's less than the 3- percent rise estimated for January- March.

Spotlight on meat. Supplies of red meat and poultry this year will be up to 1 to 2 percent. But total supplies of beef will drop, due to less nonfed beef, the kind that goes into leaner cuts.

The shrinkage in beef supplies spells steeper retail prices. In January this year, you paid about 5 percent more than a year ago. Look for beef prices to continue higher throughout 1978.

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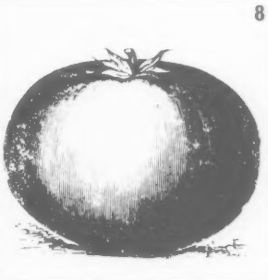

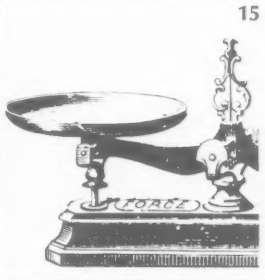

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Costing Out the Crop Ledger

You don't have to side with the farm strike people to agree that farm production costs are moving up at a time when net farm income is barely holding its own.

The judgment about escalating farm costs rings loud and clear in a yearly report just prepared by ESCS for the Senate Committee on Agriculture and Forestry.

Economists annually project production costs for 10 major commodities, and conclude that this year's bill will run 2 to 9 percent higher—depending on the commodity—per planted acre than in 1977. That assumes cost hikes for farm machinery and labor, but smaller increases for chemicals and fertilizers.

Helping decisionmakers. ESCS (formerly ERS, now combined with the Statistical Reporting Service and Farmer Cooperative Service) has been conducting these cost studies since 1974 and as required by the Agriculture and Consumer Act of 1973. The new farm law of 1977 endorsed the need for continuing research to help decisionmakers chart the course for the Nation's agricultural policies.

In their preface to the latest report to the Senate committee, the economists stress that their estimates on production costs are just that: They vary over time, from farm to farm, and across State and regional boundaries.

Differences of production costs among farms are traced to climate . . . soil types . . . managerial skills of the operators.

Size counts. Obviously, size of the farm unit adds a bias to the cost ledger, since larger farmers often get discounts on inputs because they buy in volume. The big guys can also make more efficient use of resources, machinery in particular. They also have the edge when it comes to marketing arrangements.

In other words, the costs discussed in this article are average estimates; they cover a broad range, and the books of individuals may differ widely from the numbers presented here.

The ranking of crops in the per-acre production cost ledger for 1978 is the same as last year. The top five, in descending order of per-acre costs, are rice, peanuts, cotton, corn, and grain sorghum. Oats are cheapest to produce, followed closely by flaxseed.

Not a yardstick of "well-being." Keep in mind that these costs pertain to variable costs, machinery ownership, overhead, and management. They exclude land costs. They are not intended as a measure of the farmers' well-being, inasmuch as they also exclude the yield factor, not to mention prices received.

First, a look at food grains. Projected cost for all wheat averages over $73 an acre for 1978, about $4.50 more than last year. This is turnabout from 1977, when costs actually went down due to softer prices for fertilizers and farm chemicals. For Hard Red Winter wheat—accounting for about half of total U.S. wheat production—costs are consistently the highest in the Southwest because much of the wheat is under irrigation.

Little variation for rice. The nonland costs for producing rice in 1978 are figured at more than $339, up $14.50 from the year before, mostly because of jumps in variable and machinery ownership costs. It costs roughly the same to grow rice in all regions, though California's average is a shade higher than the South Central States.

On the feed grains side, corn is expected to cost nearly $153 per acre—an increase of around $7.30 over 1977—mostly due to rising prices of energy, machinery, and labor. Prices of these inputs are likely to advance as much as 10 percent.

The production bill is lowest in the Lakes States and Corn Belt, with the Northeast running a close second. The Southwest has the highest cost, with energy needs associated with irrigation mainly responsible.

Grain sorghum is slated for a $7.50 increase, bringing the U.S. average for 1978 to nearly $104 per planted acre. The Central Plains States again are the most economical area for sorghum production. The Southern Plains producers pay the most, since nearly half the acreage is irrigated, and charges for machinery, labor, and energy are shooting up.

Northern Plains lowest in soybean costs. Mixing up the feed grains/oilseeds picture, we find that soybean costs are likely to creep up less than $3 per acre this year from 1977's $97, thanks to a drop in the bill for variable items such as seed. The Northern Plains producers turn out beans more cheaply than elsewhere, though the kingpin of soybean production (Lakes States and Corn Belt) isn't far behind—a spread of approximately $12.

Cotton costs for 1978 are up an estimated $7 to $267. The Southern Plains gets top honors for least-cost production, and the irrigated Southwest for the highest.

Peanut growers can expect their bills to go up almost $7 an acre this year, from $304. Costs are steepest in the Southeast and lowest in the Southwest.

[Based on manuscript, "Costs of Producing Selected Crops in the United States, 1976, 1977, and 1978," by Ronald D. Krenz, Commodity Economics Division, prepared for the Senate Committee on Agriculture and Forestry.]

COSTS TO PRODUCE SELECTED CROPS: DOLLARS PER PLANTED ACRE*

	1976 (final)	1977 (preliminary)	1978 (projected)
All wheat	69.11	68.65	73.12
Rice	295.10	314.95	339.45
Corn	141.11	145.53	152.80
Sorghum	91.59	96.12	103.61
Barley	75.39	74.42	77.29
Oats	50.51	52.33	55.22
Soybeans	86.44	94.03	96.84
Peanuts	292.17	303.51	309.22
Cotton	245.11	260.35	267.39
Flaxseed	51.81	53.68	58.53

*U. S. averages, including variable costs, machinery ownership, overhead, and management.

Farm Program Takes Root in Rocky Soil

EDITOR'S NOTE: A half year ago, the farm act of 1977 became law, setting the foundation for the Administration's farm program. With the additional insight of 6 months, ESCS researchers take a new look at the way this crucial law functions.

When President Jimmy Carter signed into law the Food and Agriculture Act of 1977 last September 29, he formally accepted a package of authorities which will govern American agriculture and food policy through 1981.

Despite criticism that has arisen since the ink dried on the President's signature, both the Administration and its critics generally agree on the objectives, if not the means. Briefly stated, the objectives are to benefit farmers and consumers, domestic and foreign, and to enhance the U.S. position in international trade.

Program characteristics. Congress worked with the President to carve out a legislative framework with these characteristics:

- Programs relevant for all situations, whether the problems derive from surpluses, shortages, or instability. Flexibility is a must.
- Consideration is given to interdependence among crops and between crops and livestock. For example, livestock producers must depend on grain farmers for a reliable supply of feed at a reasonable and stable price. Legislation affecting feed grain production also affects livestock operations.
- The law is practical enough to accomplish intended objectives. The provisions are intended to go beyond theory and into "real life" applicability.
- Each commodity and each region of the country is to receive equal treatment in terms of support or required adjustments.

Effects of the act. How will the 1977 act, at a whole, affect U.S. agriculture? According to ESCS researchers, some key observations are:

- The good manager is likely to benefit most from the act, since it encourages producers to be flexible in organizing an operation.
- Society is assuming a greater portion of risk for both natural and economic disasters for crops with target prices.
- Two major concepts are used to support commodities. One group, including grains, cotton, and wool, receive direct payments and, except for rice, no longer have payments based on allotments or bases. A second group including tobacco, peanuts, ELS cotton, sugar, soybeans, and dairy, have price support programs.

Major provisions. While the effectiveness of the Administration's programs cannot be fully assessed yet, let's take a look at major provisions that are included in the farm law:

Price supports. Nonrecourse loans continue to be the basis for price supports. Levels are set to try to provide price protection for farmers, but without disrupting the market—except when unexpectedly large production could build excessive stocks. Loan rates for grains and cotton are set in relation to world market levels.

A different twist from past loan programs allows wheat and corn loan rates to be lowered by up to 10 percent on the year following a market price drop to 105 percent or less of the loan rate for the current year.

This protects U.S. competitiveness in world trade, while maintaining an absolute bottom price of $1.75 a bushel for corn, and $2 for wheat.

Income supports. If market prices do not stay at or above target price levels during the first 5 months of the marketing year, eligible producers of crops with target prices receive a deficiency payment at a rate based on the difference between target price and market price or loan rate if it is above market price.

Reward for cooperation. The payment rate is multiplied by the level of eligible

production on the farm. Eligibility is determined in a way that reflects the farmer's cooperation with announced provisions such as set-aside acreage.

For example, farmers are asked to set aside 20 percent of the acreage they plant to wheat for 1978. A producer who does not comply with the set-aside requirement will not be eligible for loans, deficiency payments, or disaster program protection.

National weighted average cost of production estimates were used in setting target prices for all target price crops except rice. For this year, they're based on estimated production costs, including a return allowance for land.

Disaster payments program. These provisions extend only until 1979, pending further study by the Administration which hopes to improve protection for farmers. The Administration will probably propose an all-risk, all-county, and all-producer coverage which would resolve inequities and problems in the existing program of disaster payments and crop insurance programs.

Dealing with flaws. In the 2-year interim, the law does address some glaring shortcomings of the previous disaster payment program by covering planted acreage of the eligible crop.

Another adjustment bases coverage on the difference between a predetermined production level that triggers disaster payments, and the deficit in actual production below that level. This eliminates the "snapback" phenomenon where the difference between no payment and a sizable payment could be affected by a very small margin of production.

Payment limits. Per person payment limits will continue, but at double the previous maximum level. This means that farmers can receive no more than $40,000 per person for commodities other than rice (now $52,000). Payment limits will be adjusted to $50,000 by 1980 for all commodities, including rice.

Only deficiency payments and diversion payments will count against the limit. Disaster payments will not be included.

Production control. The act attempts to control production through the set-aside concept, but based on acreage planted rather than percentage of allotment or base.

Each farm will be assigned a normal crop acreage based on total acreage of grains, oilseeds, fibers, and other specialty cash crops grown on that farm in 1977.

Normal cropping base. If set-aside is in effect, the farmer is required to limit the total acreage of set-aside plus normal cropping acreage crops to the assigned normal cropping acreage.

Soybeans are an exception to the set-asides, with control being exerted indirectly from the loan rate.

To come up with production goals and set-aside needs, the act requires that a national program acreage, representing acreage needed to meet domestic and export needs, be formulated. Then, farmers are asked to make a voluntary reduction, if acreage needed to attain that goal for a given crop is less than the previous year's average.

Producers who cooperate are eligible for target price protection on all they plant for harvest, while those who do not cooperate may lose protection on up to 20 percent of acreage planted.

Marketing. The key to the individual's marketing strategy under the 1977 act is the nonrecourse loan, which serves as a floor to prevent disruptively low prices, and it provides financing for farmers in the interim while they make marketing decisions.

A major thrust in marketing is the producer-held grain reserve program which seeks to entice farmers to store about 1 billion bushels of grain, thus removing a large oversupply from the market until prices—and needs—go up.

Reserve program incentives. The reserve program allows holders of nonrecourse loans to convert to the producer-held reserve and continue to hold grain in anticipation of higher prices. The Government offers storage payments and can provide interest adjustment or forgiveness as incentive for participation.

Prices must reach a set level for farmers to withdraw stored grain without penalty before the storage agreement expires in 3 years.

Besides helping farmers, the reserve program is aimed at creating safe cushions against future crop shortfalls to protect both Americans and people in other nations who depend on a reliable supply of U.S. grains.

The upshot is that agricultural and food policy, hence farm programs, are developed and administered on the basis of individual commodities. The new act goes a long way in providing the necessary authorizations and mechanisms to administer a coordinated policy in terms of both domestic and international consideration.

[Based on the speech, "The Government Farm Program and How It Works," by Milton H. Ericksen, Commodity Economics Division, given at the 29th Annual Credit Conference in Bozeman, Mont., on Feb. 9, 1978.]

Commodity Profile:

Rolling Waves of Red

Look to the fast food restaurants to point toward growth in the processed tomato industry. That's where most expansion has come from over the past 15 years.

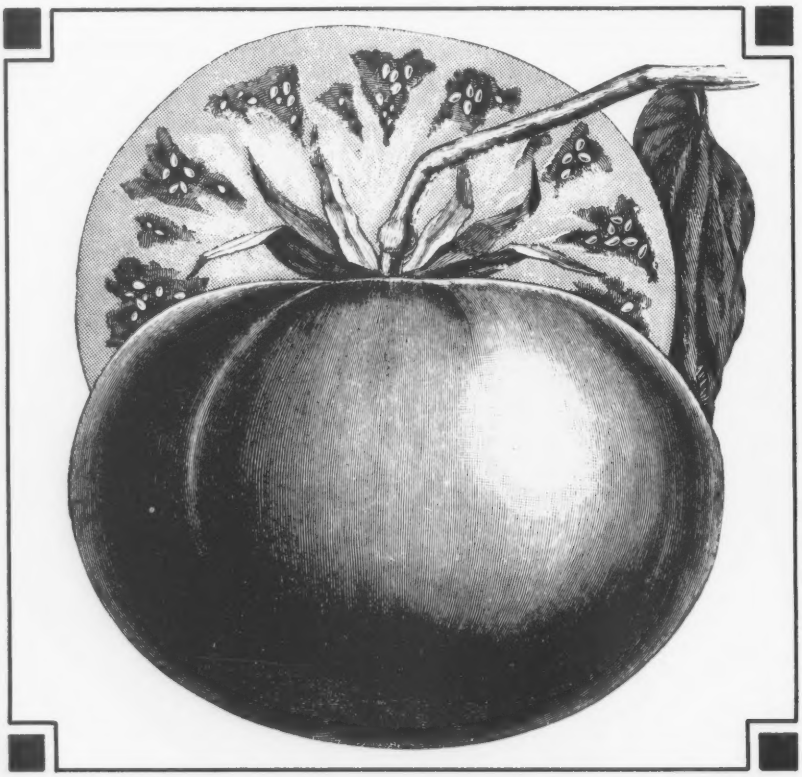
Except for tomato juice, processed tomato consumption has been growing along with fast food chains. Specializing in French fries, hamburgers, and pizza, they have almost single-handedly caused Americans to eat more tomato products.

Gains have been especially strong for catsup, chili sauce, tomato paste, and tomato sauce. Combined consumption of these products climbed from under 9 pounds per person in 1965 to over 13 pounds in 1976, and the trend shows few signs of easing right away.

Steady as she goes. The amount of other tomato products we eat didn't change much during those years. Pulp and puree consumption stayed at just over a pound a year; canned whole tomato intake inched from 4.5 pounds apiece to 5.2 pounds in 1976; and juice consumption took a back seat to frozen concentrated orange juice and other citrus, slipping from 4.7 pounds to 2.8 pounds in 1976.

Altogether, we ate 22.4 pounds of processed tomatoes last year, compared with 18.9 in 1965. These weights are on a processed basis. Converting them to a fresh-weight equivalent—the weight of the tomatoes as they came from the field—provides a more striking insight.

Canned tomato consumption leaped from 46 pounds in 1965 to nearly 62 pounds (not including soup) in 1976. There was a 19-percent rise between 1970 and 1976—a period that corresponds roughly to the greatest growth years of the fast food industry.

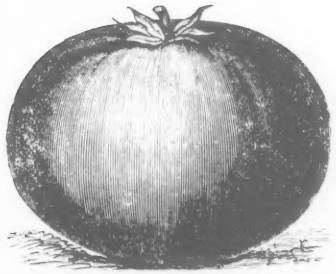


Still No. 1. The consumption shifts help explain why tomatoes have enhanced their position as the number one processed vegetable in the U.S. While canned tomato consumption spurted 19 percent, consumption of all other canned vegetables combined held steady.

U.S. plants processed 7.8 million tons of tomatoes last year, compared with 13.3 million of all vegetables.

Production, meanwhile, more than kept pace with consumption, so imports of tomatoes for processing are negligible. Production in most years in the mid-1960's ranged between 4 and 5 million tons, with a farm value of $140-$220 million. In 1977, U.S. farmers harvested 7.8 million tons for a value of nearly $498 million. Record production was in 1975—more than 8.5 million tons. That followed the 1974 record price of an average $64.50 a ton. Last year, growers received $64.10 a ton.

Stable yields. Yields, meanwhile, have been fairly stable for processing tomatoes. They averaged 16-17 tons per acre in the mid-1960's. More recently, in 1975, yields were just over 22 tons per acre. They slipped to 21 tons in 1976,



but were up again last season to 22.4. Weather plays the major role in the ups and downs of tomato yields.

The question of yields is also the most important reason why large commercial production of tomatoes is concentrated in fewer than a dozen States. The leading State, by far, is California, with roughly 85 percent of the Nation's processed tomato output in most years. California yields are usually much higher than the rest of the country, as well, averaging near 24 tons per acre. Most other large producers average closer to 20 tons.

The method for taking the tomatoes from the fields has changed drastically since the 1940's, when most were hand picked. Today, only fresh-market tomatoes are picked by hand, then later sorted.

Untouched by hands. Processing tomatoes are removed from the field by machine, then trucked to a packing warehouse, where again machines crate the fruit.

This high degree of mechanization extends to the tomato processing industry.

Over the past quarter century, it has been changed by innovations to satisfy the growing demand for tomato products. Machines and money have largely replaced workers, as raw tomato production in the U.S. has more than doubled, and in California more than tripled.

With the mechanization and the swelling California production have come more centralized processing plants. Firm and plant numbers have generally slipped, and will probably continue downward.

Especially in the East and Midwest, production and plant numbers will probably decline, while western plants continue to grow (although there are fewer of them).

Double up in California. In California, the processing capacity of the tomato industry has doubled since 1960. A single busy week in 1975 saw more than 800 tons of raw tomatoes pass through California plants.

Not only are the processing plants more centralized now, but producers, too, have consolidated and enlarged operations. Since 1956, the average size of a grower operation in California has leaped from 95 acres per operator to over 360.

The prospect for continued growth in the tomato industry is bright. The technological progress, particularly since the early 1960's, that has been a hallmark of the industry has kept tomatoes competitive with other foods. The mechanical innovations—machine harvesting, electronic sorting, and mechanical bin and bulk handling—will lead to further progress in processing systems and greater bulk-storage efficiencies.

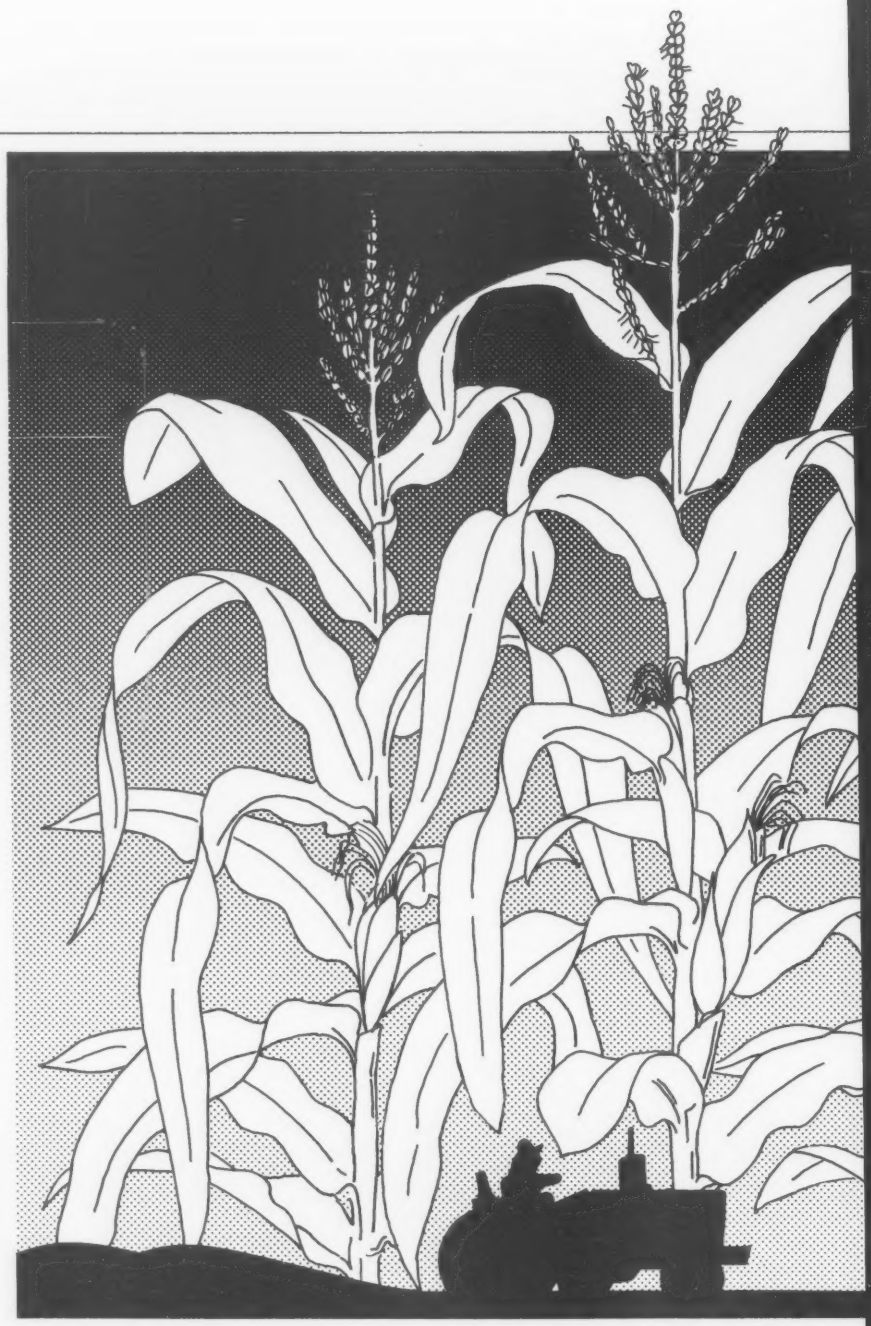
[Based on special material from Charles W. Porter and Wilma Davis, Commodity Economics Division.]

COMMODITY PROFILE: TOMATOES FOR PROCESSING

Production:	**7.8 million tons in 1977, up 1.3 million over 1976**
Value:	**$498 million in 1977, up $123 million over 1976**
Leading States:	**California produced 86 percent of the tomatoes for processing in 1977.**
Consumption:	**22.4 pounds (processed basis) per person in 1977, up slightly over 1976**
Trends:	**New processing technologies will help keep processed tomatoes competitively priced with other foods, while demand will remain vigorous.**

The Corn Belt: Land of Plenty

This is the sixth in a series of articles on regional agiculture.



Although soybeans and hogs have been giving corn a good run for its money in the Corn Belt, the golden kernel is still king.

The five Corn Belt States—Illinois, Indiana, Iowa, Missouri, and Ohio—produce more corn than any other region of the country, and the crop has helped bestow the Midas touch to the area's agriculture.

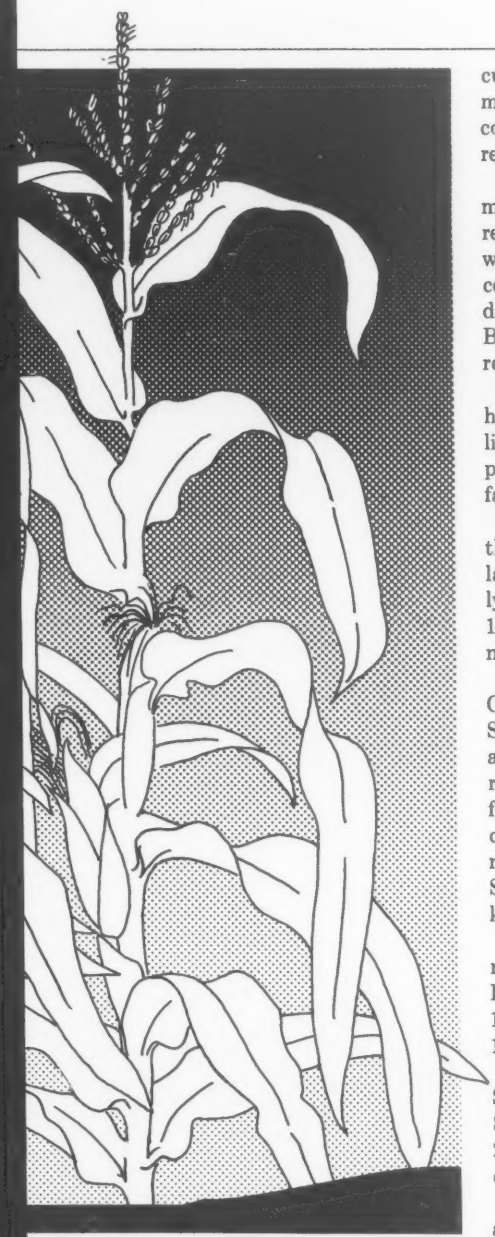
Based on the value of cash receipts, Illinois was the leading corn State in 1976, followed by Iowa in second place; Indiana, third; Ohio, fifth; and Missouri, eleventh. The States ranked first, second, third, fifth, and eighth, respectively, in corn production.

Crops are tops. Thanks to corn and its top competitor—soybeans—cash receipts for crops averaged 54 percent of the region's total farm receipts in 1976, making the Corn Belt one of the few agricultural areas where crops are more valuable than livestock products.

Of the total crop receipts, 47 percent were for corn, while soybeans accounted for 39 percent.

In that year, corn, soybeans, hogs, cattle and calves, and dairy products were the leading cash crops in each of the Corn Belt States, although not in that order. For instance, corn was the number one cash commodity in Illinois and Indiana; hogs topped the list in Iowa; cattle and calves in Missouri; and soybeans in Ohio.

The big five. The importance of these five commodities to the area's agri-



cultural economy cannot be underestimated—in 1976, for example, they accounted for a whopping 89 percent of the region's total farm receipts.

Corn was the most valuable commodity, making up 26 percent of the region's total cash receipts. Soybeans were next at 21 percent; hogs, 19 percent; cattle and calves, 16 percent; and dairy products, 7 percent. (The Corn Belt is the largest livestock producing region.)

The success of these commodities helped Corn Belt farmers to net $4.5 billion in farm income in 1976—about 20 percent of the $21.9 billion that all farmers earned that year.

Farm output. And with 22 percent of the Nation's farms and 12 percent of the land in farms, the region produced nearly $22 billion worth of farm goods in 1976, about 23 percent of the total national farm output of $94 billion.

As shown by these figures, all of the Corn Belt States are important farm States. Iowa, with a larger proportion of arable land than any other State, ranked as the second most important farm State in 1976, based on the value of cash receipts. Its $7 billion of farm marketings were more than any other State, except for the agricultural kingpin—California.

Illinois came in 4th, with slightly more than $6 billion of farm marketings; Indiana, 8th, more than $3 billion; Ohio, 11th, nearly $3 billion; and Missouri, 12th, almost $3 billion.

Top commodities. All of the Corn Belt States ranked among the leading 10 States for cash receipts for some of the 25 top commodities in 1976. These included:

- Illinois—first in the Nation for corn and soybeans; hogs, second; greenhouse and nursery, fifth; and wheat, tenth.
- Indiana—corn, soybeans, and hogs, third; tomatoes, fifth; and eggs, eighth.
- Iowa—cattle and calves, corn, and soybeans, second; hogs, third; and dairy products and turkeys, eighth.
- Missouri—soybeans and hogs, fifth; rice and turkeys, sixth; sorghum grains, seventh; cattle and calves, ninth; and dairy products and cotton lint, tenth.
- Ohio—greenhouse and nursery and tomatoes, third; soybeans, fourth; corn, fifth; grapes, sixth; dairy products and hogs, seventh; tobacco and forest products, ninth; and lettuce, tenth.

Specialties. Besides the big money-making crops, each Corn Belt State produces a number of specialty items, some of which have made the area famous. Take corn cob pipes, for instance—Missouri is the country's leading producer.

The Show Me State has also thought of many clever ways to utilize its forests; it is the leading producer of charcoal, cedar novelties, white oak barrel staves, and walnut logs, lumber, woodenware, and nut meats (the world's largest walnut cracking plant is in Missouri).

Missouri also ranks high in the production of oak flooring, railroad ties, pallets, handles, pine posts and poles, and walnut veneer and gunstocks.

Northern cotton. Cotton—grown in the Southeast Missouri Delta, which borders the famous cotton country of Tennessee and Arkansas—is somewhat of a specialty in that this is the farthest north it is commercially produced in the U.S. Over 300,000 acres were harvested in 1976, and Missouri farmers earned about $50 million for cotton lint.

Commercial vegetable and fruit crops include sweet corn, tomatoes, cabbage,

purple hull peas, watermelons, apples, and grapes. Walnuts, pecans, grass and legume seed, tobacco, sheep, honey, oats, and popcorn are other important Missouri farm products.

Although it may be best known for its hogs and corn, Iowa is also one of the Nation's top producers of popcorn, oats, clover, Timothy seed, and alfalfa.

Fertile soil. Neighboring Illinois is known for its fertile and well-drained soil, which makes the production of a number of crops possible. The deposit of loess along the river bluffs, for example, is well suited for fruit and vegetable crops.

Apples, peaches, strawberries, sweet corn, snap beans, potatoes, asparagus, cabbage, carrots, and tomatoes are the most important fruits and vegetables.

The Prairie State is the leading producer of horseradish, onion sets, red clover seed, and—to the chagrin of Wisconsin—Swiss cheese. Oats, rye, and barley are other important crops.

Wild berries, fruits, and flowers were abundant in the early days of Indiana, and they have achieved commercial importance today. Apples, peaches, strawberries, and blueberries are some Hoosier State specialties, as are a wide assortment of ornamentals.

Hoosier tomatoes. Tomatoes have been an important crop since the 1880's, and in 1976, based on the value of cash receipts, Indiana was fifth in the Nation for this commodity. Potatoes, watermelons, cantaloups, cabbage, cucumbers, and onions are other major vegetables.

The Hoosier State is also noted for its tobacco, rye, barley, buckwheat, popcorn, and mint.

The remaining Corn Belt State—Ohio—produces a large number of vegetables and fruits, and ranks among the leading States in the country for marketings of tomatoes, grapes, and lettuce.

Other major vegetable and fruit crops include potatoes, cucumbers, sweet corn, cabbage, escarole, peppers, onions, celery, snap beans, cantaloups, apples, strawberries, peaches, and cherries.

Buckeye specialties. The Buckeye State is also known for its soft red winter wheat, sugar beets, apples, sheep, mushrooms, popcorn, maple sirup, honey, and Christmas trees.

Fertile soil and adequate rainfall are two of the keys to the Corn Belt's agricultural wealth. According to the latest Census of Agriculture, less than 1 percent of the region's farms and farmland was irrigated in 1974.

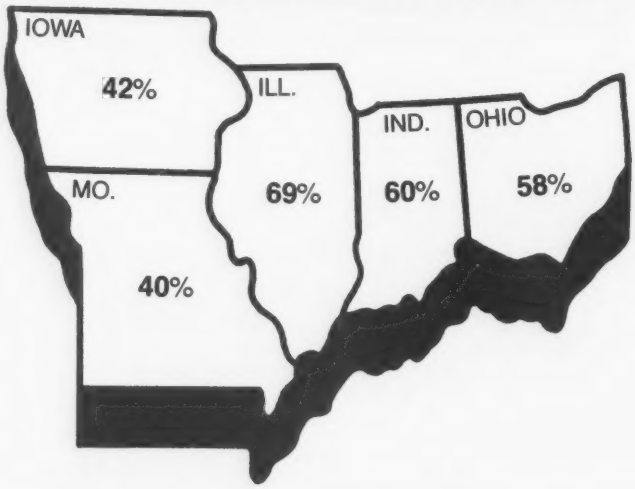
Being blessed with an unusually large amount of tillable land is another bonus. Fully three-fourths of the Corn Belt's approximately 165 million acres were in farmland in 1976; this compares with less than half for the Nation as a whole.

Valuable acreage. Like the neighboring Northeast and Lake States, Corn Belt farms are relatively small, averaging only 219 acres in 1976 (the national average was 394 acres). However, each acre is worth its weight in gold. For example, the average value of an acre of Corn Belt farmland was about $827—more than double the national average.

In line with a nationwide trend, the number of Corn Belt farms has decreased since 1935, although at a slightly slower pace than for the Nation as a whole (a 50-percent decline, compared with 60 percent nationwide).

The biggest problem Corn Belt farmers may have to face in the coming years—besides getting adequate prices for their goods—is soil erosion caused by water and wind.

Crops' Share of Agricultural Receipts—1976



A Look at Missouri Farming

Back in 1900, agriculture was Missouri's number one industry, and things haven't changed a bit. Farming is still top banana in the Show Me State.

In 1976, annual cash receipts from about 134,000 Missouri farms were over $2.7 billion—making the Show Me State the 12th most important farm State in the Nation.

But what was Missouri farming like at the turn of the century? For one thing, there were more than twice as many farms—somewhere around 285,000.

Corn was the leading field crop, and Missouri farmers were proud of an average yield of about 30 bushels per acre (the 1972-76 average yield was about 74 bushels per acre).

Around 1900, the Show Me State produced one-eighth of all corn grown in the U.S., and the State boasted the largest corn farm in the country—30,000 acres in Atchison County.

About the same time, Missouri laid claim to more registered Herefords than any other State, more first and second saddle horse prizes at the Chicago World's Fair, more tobacco products manufactured in St. Louis than in any other city, and the largest nursery in the world.

In addition, the Show Me State had:

- 400,000 acres of unclaimed Federal land.
- 12 million acres of bluegrass (which created a demand for grazing hogs for such pastures).
- A livestock income of $100 million (compared with nearly $1.6 billion in 1976).
- Nearly 300,000 mules.
- Unimproved land for sale in the Delta for $9-$15 per acre.
- 50 creameries, 29 cheese factories, and 20 skimming stations in operation.
- Annual orders to ship 2,000 carloads of strawberries.

[Based on *A Basic Resource: Missouri Agriculture*, by the University of Missouri-Columbia, Extension Division.]

Conservation farming. Farmers are combating erosion by improving soil structure—growing crops and vegetation is the primary method—and by practicing good conservation efforts, such as contour farming, strip cropping, terracing, and grassed waterways.

The good conservation farmer will use any or all of these practices where needed to prevent his soil from being washed or blown away. And contrary to what some people think, conservation methods actually help farmers make money, as well as save soil.

Conservation farmers have larger yields per acre and make more money over a period of years than farmers who don't use conservation practices.

As for the future, agriculture will continue to play an important role in the Corn Belt's economy, with midwestern farmers enjoying somewhat of a competitive advantage over other parts of the country.

Corn will remain king, although the "Cinderella crop"—soybeans—and hogs will be doing their best to dethrone the golden kernel.

Farm numbers will continue to decline, while farm sizes expand. Growing productivity and larger, more efficient farms will result in a larger share of the total agricultural activity being carried on by a smaller portion of the farms.

[Based on special material from Thomas Frey, Natural Resource Economics Division; Wayne Rasmussen and Donald Durost, National Economic Analysis Division; Joseph C. Podany, Commodity Economics Division; and Chris Scherer, University of Illinois, Edward Ferringer, Purdue University, K. Robert Kern, Iowa State University, Dick Lee, University of Missouri, and Howard Frisbee, Ohio State University, all with the Cooperative Extension Service.]

How the Corn Belt Got Its Name

USDA first used the term in its 1906 Yearbook. In the 1920's, O.E. Baker of the Bureau of Agricultural Economics presented the term as a working tool to professional geography, and it has been used almost universally since.

The term has been defined slightly differently over the years, but it has usually referred to the Nation's region of greatest corn production. The States included in the present definition are Illinois, Iowa, Indiana, Ohio, and Missouri.

How the Corn Belt got its name is almost as interesting as the history of the land itself.

When the British settlers first arrived in the New World, they used the word "corn" as they had used it at home—to mean grain in general.

At the same time, "corn" was used to refer specifically to the major grain of a region. For instance, in England, "corn" was wheat, while in Scotland and Ireland, "corn" referred to oats.

Thus, the English called the native American grain either maize or "corn." Later, the term "Indian corn" was widely used, appearing in many early USDA reports.

Today, "corn," "Indian corn," and "maize" all refer to the same grain—the golden kernel, America's most important crop.

The term "Corn Belt" apparently was first used in 1882, in an eastern news magazine. The concept was crystallized in 1903 in a series of articles by T.N. Carver, then professor of economics at Harvard University and later on the staff of USDA.

Besides corn, the region's major money-making commodities are soybeans, hogs, cattle and calves, and dairy products. All of the Corn Belt States rank among the Nation's dozen leaders in cash receipts from farming.

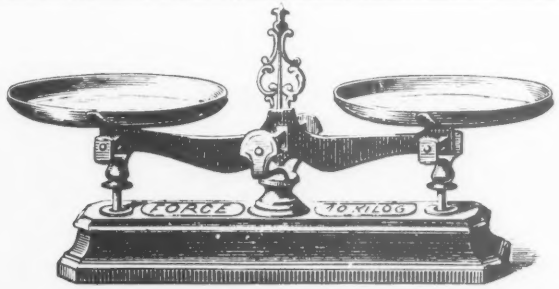
Despite their usual comparative prosperity, Corn Belt farmers led farm protest movements and strikes in the 1930's and 1960's.

Both the Farm Holiday movement of 1932-33—which helped bring about the passage of the Agricultural Adjustment Act of 1933—and the National Farmers Organization withholdings of the 1960's had their beginnings in Iowa and spread to the other Corn Belt States.

Corn Belt farmers have earned a reputation for being innovative and capable. The region produced the first effective gasoline tractor, the first commercial hybrid seed corn companies, and the Master Farmer movement to recognize outstanding farmers, to name a few accomplishments.

[Based on special material by Wayne D. Rasmussen, National Economic Analysis Division.]

Parity: The 100% Solution?



Parity . . . "the state of being equal or equivalent," as defined by Webster's dictionary.

Perhaps no other word has been bandied back and forth in American agriculture as much as this one. And perhaps no other agricultural concept has been as tenacious or controversial.

Back in 1921, it came into popular use as farmers decried their plight, which was indeed serious. After the Depression of '29, "parity" became official—it got legislative sanction in the Agricultural Adjustment Act of 1933. Congress was then directed to reestablish prices to farmers at parity levels.

As defined by law, parity became a ratio of prices received for farm commodities to prices paid by farmers for production and living expenses. And that ratio was based on the 1910-14 period, the so-called "Golden Age of Agriculture."

Bushel power. In other words, the parity price of a particular commodity was set at the price that would give a unit of that commodity—say, a bushel of wheat—the same purchasing power that it had during 1910-14.

Although interpretations have varied, the same legal definition of parity remains.

Parity has received the stamp of tradition as a barometer to tell if all's well in the farm sector. As prices fall below parity levels, farmers invariably get concerned, as do policymakers.

Since 1950, the parity ratio has been declining, hence a renewed building of interest in parity—most recently espoused by the farm strikers. However, despite numerous congressional bills, recent agricultural legislation has generally shied away from the parity formula.

The ins and outs of parity. At first glance, parity seems to offer a way of gauging agriculture's economic condition, particularly in relation to the urban sector, which provides many of the goods and services that farmers buy. But parity, the critics say, is nothing more than a price comparison. It does not measure production costs, income, living standards, or even farmers' general economic well-being.

Too, relying on a reference point that is now over 60 years old presents problems. For example, today's farmers don't purchase the same mix of items that they once did.

Prior to World War I, farmers bought horses, buggies, sleds, cast iron stoves, walking plows, spike-tooth harrows, and harnesses. Today, they buy tractors, electricty, microwave ovens, pesticides, hybrid seed, and fertilizers. (Some changes have been made in the Prices Paid Index, but problems still exist.)

Quality factor. And even when the items purchased are basically the same, there's a matter of quality, due to technological changes. Today's car is a far different machine than its pre-World War I ancestor. Our clothes today—many made with synthetics and most "perma-prest"—are also not the same as the wool and cotton clothes of yesteryear.

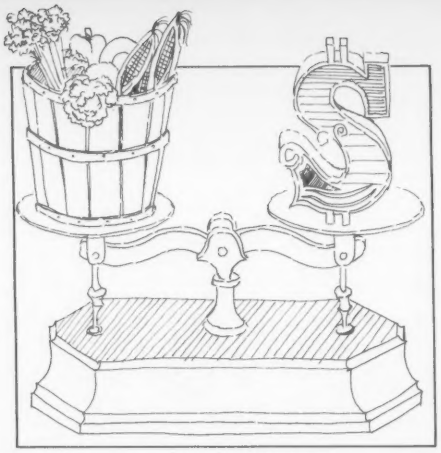
However, the parity formula does not make adjustments for changes in quality. That is, that a suit might be worth more bushels of wheat or corn today than 60-plus years ago because the suit has improved. Also, parity does not reflect quality or regional differences even among today's products.

Those who argue against the parity formula point to still another snag: that changes in demand—whether from technological revolutions, consumer preferences, or both—aren't figured in.

Horsepower switch. The switch from horsepower to machines is an extreme example. Demand for oats went down as did oat prices, but neither was recognized in the parity price. Another example is the demand for soybeans. In 1910, it was such an insignificant crop that USDA didn't even publish production figures. Today, it is in worldwide demand as a high-protein source.

The parity formula has been adjusted substantially from time to time in an effort to deal with the above problems—most notably in 1948. But those modifications have not overcome the basic shortcoming of the parity concept: The reference point for equality is still the half decade before World War I.

Parity has also failed to take into account the dramatic hikes in U.S. farm



productivity. In 1910, an acre grew 26 bushels of corn; today, it yields 92 bushels. Wheat yields have gone from 14 bushels an acre to over 30. In fact, farm output has increased over 140 percent, while total inputs have risen by only 16 percent.

Statistical hitches. Two other hitches have to do with the statistical indexes on which parity is calculated:

- By definition, the parity price concept is geared to the farmer who produces all the products in the Prices Received Index and buys all the products in the Prices Paid Index. So, we end up with a situation like this: A commodity requiring inputs whose prices happen to advance faster than the increase for all inputs will get the short end of the stick.
- Some commodities turn up in both the prices received and the prices paid accounts, corn being a prime example. Farmers not only grow it, but they also buy it as a feed input. Hence, a double accounting, leading to price escalations.

The parity concept has its loopholes and shortcomings. But then again, so do many ways of dealing with today's complex agricultural situation—a situation that has worsened with inflation and, in many cases, falling farm prices.

Below parity. February farm prices averaged around 67 percent of parity prices, ranging from 8 percent for lemons to 120 percent for oranges. In fact, of the 43 major commodities for which USDA computes monthly parity ratios, all but 3 were selling below full parity levels.

A cause for concern? Obviously. A flip through the Congressional Record or the House and Senate agricultural committee agenda will turn up numerous pending bills dealing with parity in some form.

In fact, parity prices frequently crop up in bills both on and off the law books. Two notable instances are in legislation dealing with price support levels and that having to do with marketing-agreement and marketing-order programs.

Parity percentages. Throughout the years, legislation directing USDA to support prices of agricultural commodities has most often not been in dollars-and-cents figures, but rather as a percentage of parity.

Per the Agricultural Marketing Agreement Act of 1937 (as amended), parity prices are used to carry out marketing-agreement and marketing-order programs for dairy, fruits, vegetables, and certain other commodities such as nuts, tobacco, and hops.

But the most vocal supporter of parity at the moment is the American Agricultural Movement (AAM)—backer of the latest farm strike. In fact, across-the-board, "100 percent parity" has become the rally call of the organization.

AAM plan. Concerned over the cost-price squeeze many of them are in and what they consider to be inadequate or ill-directed Government action, the members have drawn up their own 8-point plan for parity:

(1) An end to all direct and indirect Government subsidies to farmers, to be replaced by a law that agricultural products cannot sell for less than 100 percent of parity. Parity would be based on "an honest base period."

(2) Producer-held reserves. That is, that the Government not buy or sell agricultural products, except for its own needs, such as welfare programs, or for "national strategic reserves."

February 1978 Farm Prices for Major Commodities

	Dollars	
	100% parity	Actual market
Wheat (bu.)	5.07	2.58
Corn (bu.)	3.54	2.00
Cotton (1 lb.)	.866	.488
Soybeans (bu.)	8.38	5.42
All Milk[1] (cwt.)	13.60	10.20
Beef cattle (cwt.)	60.10	39.90
Hogs (cwt.)	58.80	47.90
Eggs (doz.)	.845	.551

[1]For manufacturing-grade milk alone, parity price $11.64, market price $9.14.

(3) A national board of agricultural producers to "devise and approve agricultural production and marketing policy." The members would be elected by active farmers.

(4) Leeway in negotiating prices for special or quality products certified as such by the national agricultural board.

(5) A ceiling price of 115 percent of parity be levied at the farm level to guard consumers against price manipulations.

(6) No production restraints, but actual sales to be controlled by marketing quotas and certificates—to be issued by the national agricultural board.

(7) Farmers to be responsible for storing, unsubsidized, any surplus production.

(8) International trade policies . . . that no farm good be exported at less than parity price; that agricultural imports which compete with domestic goods not be sold at less than 110 percent of parity; that all imported agricultural goods be inspected under the same standards as domestic ones; and that all agricultural imports be

labeled "imported," all the way to the consumer.

In addition, the AAM proposed that the Prices Paid Index, used to figure parity, should be modified to exclude feed, seed, and feeder cattle since these items are both produced by farmers and sold to other farmers. Otherwise, the "double counting" would lead to price escalation—the reason being that parity-based prices would be escalated with this index.

[Based on "Parity," by David Brewster, National Economic Analysis Division; "Proposals of the American Agricultural Movement," by the American Agricultural Movement; "Agriculture: Parity, Parity, Parity," Issue Brief Number IB77116, Congressional Research Service, Library of Congress; and "Analysis of American Agricultural Movement Proposal," USDA Briefing Paper, by the Economics, Statistics, and Cooperatives Service.]

"Parity" Income . . . More Than Meets The Eye

When parity became national policy in 1933, it was presumed that "parity" income could only be achieved through parity prices. Back then, farm production per acre or unit of labor was not changing much, so just about the only way farm incomes could improve was through higher prices.

But in recent years, improved yields and more efficient inputs have boosted productivity sharply. For example, in 1975, crop production per acre was about twice what it was in 1910, while production per man-hour had increased 11 times.

Also, price supports and other direct Government payments have become important factors in maintaining the financial viability of farmers.

Hence the following paradox: Since World War II, the parity ratio has been on a downtrend, but other vital signs of the farm economy have shown marked improvement. Income per farm has increased, particularly if off-farm income is included, and the net equity of farm families has shot upward. (However, in the last decade, purchasing power has declined.)

Another measure of economic well-being is the comparison between farm and nonfarm income, a gap that has narrowed some over the years. However, the income per person in farming is still only about 81.4 percent of what the nonfarmer receives.

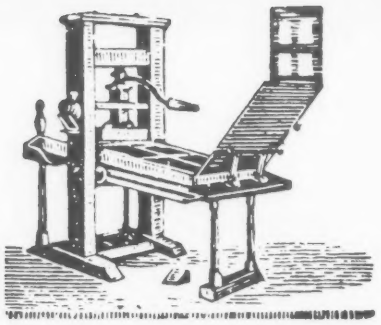
Selected Measures of Farmer's Financial Well-Being Over the Past Decade.[1]

	Parity ratio	Realized net farm income of all farms		Average income per farm family				Value of total assets per farm	
				Realized net from farming	Off-farm sources	Total			
		current $	1967 $'s			current $'s	1967 $'s	current $'s	1967 $'s
	1910-14 = 100	billion dollars		dollars					
1967	73	11.7	11.7	3,700	4,580	8,280	8,280	86,800	86,800
1969	73	14.2	13.0	4,730	5,540	10,270	9,420	101,100	93,600
1971	71	13.2	11.2	4,550	6,460	11,010	9,330	112,300	96,800
1973	91	29.9	22.5	10,530	8,340	18,860	14,180	140,000	101,100
1974	86	27.7	18.4	9,800	9,330	19,130	12,670	171,800	102,300
1975	76	20.8	12.5	7,410	10,150	17,560	10,580	187,800	102,800
1976	71	21.9	12.4	7,880	11,170	19,060	10,830	213,400	104,100
1977	67	20.4	10.9	7,540	n.a.	n.a.	n.a.	243,800	104,700

[1] Since general inflation has eroded most of the gains in farm income and assets during the past decade, figures are given in "1967 dollars" as well as actual dollars. Thus, a more realistic comparison of purchasing power can be made.

Source: Special material from Steve Guebert and Carson Evans, National Economics Analysis Division.

Recent Publications



Single copies of the publications listed here are available free from *Farm Index*, Economics, Statistics, and Cooperatives Service, Rm. 252-GHI, 500 12th St. S.W., U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see July and December issues of *Farm Index*.

The Performance and Economic Feasibility of Solar Grain Drying Systems. Walter G. Heid, Jr., Commodity Economics Division. AER-396.

With traditional sources of energy running out and the cost of remaining energy rocketing while the need for food and feed grains continues to expand, a renewed search for uses of "free" energy is underway. A substantial amount of data is being recorded for solar grain drying systems of all types. This report compiles much of that information and lists costs of construction and operation of eight solar grain dryers.

P.L. 480 Concessional Sales. A. Vellianitis-Fidas and Eileen Marser Manfredi, Foreign Demand and Competition Division. FAER-142.

Updating previous ERS reports on the same subject, this booklet discusses the P.L. 480 "Food for Peace" program, including the amendments made to authorizing legislation. Included in the study are details of the history of the program, along with an explanation of procedures, and the negotiating for and implementation of agreements. The information is meant to aid Government officials and private exporters who work with the P.L. 480 program.

U.S. Barley Industry. Walter G. Heid, Jr. and Mack N. Leath, Commodity Economics Division. AER-395.

Barley growing is a changing industry in the U.S. This report shows that more and more malt-type barley is being grown in place of feed grain barley. The underlying economic forces and changes within the industry are examined.

International Food Policy Issues, A Proceedings. Foreword by Joseph W. Willett, Foreign Demand and Competition Division. FAER-143.

This book contains 10 papers presented a year ago at the Conference on International Food Policies Issues, held in Washington, D.C. Among the topics discussed were international food security, food needs of developing countries, and food aid and malnutrition. The problems are examined and alternative solutions presented.

World Economic Conditions in Relation to Agricultural Trade. Foreign Demand and Competition Division. WEC-13.

The agricultural trade of many countries is an indicator of the economy as a whole, and often is a primary determinant of the vitality of some nations' foreign trade. This publication contains articles on world economy and agricultural trade, with separate sections on both developed and developing countries.

Developments in Marketing Spreads for Food Products in 1977. National Economic Analysis Division. AER-398.

Food prices shot up 6.3 percent in 1977—6 percent in the grocery stores and 7.6 percent at away-from-home eating places. Also, a marketbasket of farm foods cost the consumer about 2.2 percent more. This report shows that nearly all of the increase was accounted for by an increase of 3.3 percent in the farm-retail price spread; returns to farmers rose only about 0.4 percent.

Estimates of Elasticities for Food Demand in the United States. Jitendar S. Mann and George E. St. George, National Economic Analysis Division. Tech. Bul.-1580.

Statistical demand functions are estimated in this report to help provide up-to-date estimates of demand for food. Equations are used that take into account both quantities consumed and prices paid.

Farm Real Estate Taxes, 1976. Mary L. Bailey, National Economic Analysis Division. RET-17.

As services to land owners rise, property taxes, both State and local, also go up. In 1976, farm real estate taxes totaled over $3 billion, an increase of 8.5 percent over 1975. But that rate is slower than the national average, which was nearly 11 percent. The average tax per acre in the U.S. in 1976 was $3.17, compared with $2.92 the year before.

Agriculture and the Property Tax. A Forward Look Based on a Historical Perspective. Jerome M. Stam and Ann Gordon Sibold, Economic Development Division. AER-392.

Relative to their incomes, America's farmers have been paying more of the national property tax bill than nonfarmers. This report advances hypotheses to explain the disproportionate tax burden. The period 1932-75 is covered.

Economic Trends

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage earner and clericalworker households (including those of single workers living alone) in 1959-61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted fourth quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of February 1, 1976. [8] Preliminary.

Source: U.S. Dept. of Agriculture (Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale and Consumer Price Index).

Item	Unit or Base Period	1967	1977 Year	1977 Jan.	1977 Nov.	1977 Dec.	1978 Jan.
Prices:							
Prices received by farmers	1967=100	—	183	183	179	181	185
Crops	1967=100	—	193	198	185	183	186
Livestock and products	1967=100	—	175	170	174	180	185
Prices paid, interest, taxes, and wage rates	1967=100	—	202	198	202	203	208
Prices paid (living and production)	1967=100	—	196	192	197	198	201
Production items	1967=100	—	200	196	199	199	203
Ratio [1]	1967=100	—	91	92	89	89	89
Wholesale prices, all commodities	1967=100	—	194.2	188.1	197.0	198.2	199.9
Industrial commodities	1967=100	—	195.1	188.4	199.2	200.0	201.5
Farm products	1967=100	—	192.5	193.5	185.5	188.3	192.2
Processed foods and feeds	1967=100	—	186.1	179.3	186.7	189.3	191.3
Consumer price index, all items	1967=100	—	181.5	175.3	185.4	186.1	187.2
Food	1967=100	—	192.2	183.4	195.6	196.3	199.2
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	179.2	174.3	180.9	181.8	184.2
Farm value	1967=100	—	179.1	172.3	178.5	178.7	185.4
Farm-retail spread	1967=100	—	179.3	175.5	182.4	183.8	183.4
Farmers' share of retail cost	Percent	—	39	38	38	38	39
Farm Income: [3]							
Volume of farm marketings	1967=100	—	124	121	169	139	[8] 121
Cash receipts from farm marketings	Million dollars	42,817	95,025	7,950	10,469	8,853	[8] 8,300
Crops	Million dollars	18,434	47,572	4,335	6,356	4,725	[8] 4,300
Livestock and products	Million dollars	24,383	47,453	3,615	4,113	4,128	[8] 4,000
Realized gross income [4]	Billion dollars	49.9	106.1	—	—	110.0	—
Farm production expenses [4]	Billion dollars	38.2	85.7	—	—	88.5	—
Realized net income [4]	Billion dollars	11.7	20.4	—	—	21.5	—
Agricultural Trade:							
Agricultural exports	Million dollars	6,380	22,997	1,906.8	2,081.5	2,323.9	—
Agricultural imports	Million dollars	4,452	10,990	1,139.3	814.5	1,284.7	—
Land Values:							
Average value per acre	Dollars	[6] 168	[7] 450	—	—	—	[7] 490
Total value of farm real estate	Billion dollars	[6] 189	[7] 482	—	—	—	[7] 524
Gross National Product: [4]	Billion dollars	796.3	1,890.1	—	—	1,963.7	—
Consumption	Billion dollars	490.4	1,211.4	—	—	1,260.2	—
Investment	Billion dollars	120.8	293.9	—	—	305.2	—
Government expenditures	Billion dollars	180.2	394.9	—	—	413.4	—
Net exports	Billion dollars	4.9	-10.1	—	—	-15.1	—
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	626.6	1,536.7	1,454.3	1,602.3	1,622.1	1,626.4
Total retail sales, monthly rate	Billion dollars	24.4	58.9	55.7	61.6	62.0	60.7
Retail sales of food group, monthly rate	Billion dollars	5.8	13.0	11.9	13.6	13.5	13.5
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	90.5	88.7	92.2	92.6	92.9
Agricultural	Millions	3.8	3.2	3.1	3.4	3.3	3.4
Rate of unemployment	Percent	3.8	7.0	7.4	6.7	6.4	6.3
Workweek in manufacturing	Hours	40.6	40.3	39.5	40.5	40.5	39.7
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	5.63	5.46	5.81	5.88	5.92
Industrial Production: [5]	1967=100	—	137.0	132.3	139.3	139.6	138.6
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,487	110,560	103,569	113,240	116,184	—
Total inventories, book value end of month	Million dollars	84,527	177,352	167,482	177,162	177,352	—
Total new orders, monthly rate	Million dollars	47,062	112,113	105,288	116,068	120,765	—

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